

**REMARKS**

Reconsideration and allowance are respectfully requested.

The offer to rejoin non-elected claims is acknowledged with appreciation.

Amended claim finds basis at page 6, lines 3-4 from bottom of the page.

Amended claim 2 deletes the redundant expression “(PCD).” Claim scope is not affected inasmuch as a typical anionic demand value lower than 200  $\mu\text{eq/l}$  remains in the claim. Deleting a conventional short hand abbreviation therefor overcomes the objection to claim 2. Also, since a person skilled in the art knows that the composition is slightly cationic, the anionic demand concerns the composition. Thus, making explicit what was implicit has no affect on claim scope.

New claims 10-12 are supported at page 8.

The present claimed invention concerns a composition, preferably one in which the overall charge remains slightly cationic. Slightly cationic means there should be a slight anionic demand. (“Anionic demand” does not mean the composition is anionic.)

The claimed inventions are not disclosed in any of EP 0282415, JP 5230792 or JP 08296193, as described by the instant specification, nor when taken in view of PCT publication WO 99/64677.

In fact, the primary references teach compositions, as acknowledged in the Office Action, containing amphoteric mixtures (*e.g.*, anionic demand about 0) of anionic and cationic starches.

The Office Action stresses the PCT Publication WO 99/64677, but it neither describes nor suggests the claimed inventions. The Office Action concedes as much by referring to only “anionic waxy [starch] modified with maleic or succinic anhydride.” It would not have taught or suggested the present claimed inventions.

Applicants’ compositions are at least slightly cationic (claim 1), not amphoteric. Cationic character can be expressed by its anionic demand (=PCD value), which in claim 2 is an anionic demand value exemplifying a slight cationic character. Furthermore, one of the starches is waxy starch. By combining the slightly cationic character and the fact that at least one of the starches is waxy starch, improved binding is obtained. This would not have been gleaned from the cited references.

Accordingly, the current composition is novel and would have been non-obvious in view of the cited prior art. A person of ordinary skill in the art would not have been taught that the slight cationic character of the anionic-cationic composition, such as seen with the current claimed invention, improves the binding character.

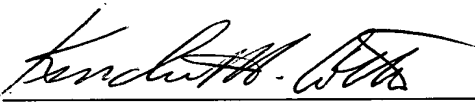
A copy of U.S. Patent No. 6,413,373B1 is attached. It came to the attention of the undersigned after the office action issued, and well within three months of its citation herein. It is made of record and the Examiner is respectfully requested to acknowledge consideration of same in the next official communication.

Applicants representative would be available for a personal interview if the Examiner has any questions.

Therefore, Applicants respectfully suggest that their elected claimed inventions are in condition for allowance.

Respectfully submitted,

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## **APPENDIX**

Amendments to the paragraph beginning at page 6, line 15:

The starches used in the present compositions are cationic starches mixed with anionic starches, such as ~~oxidised~~ oxidized maize or modified waxy starches which have been treated with maleic or succinic anhydride or anionic starches mixed with cationic waxy starch. It was surprisingly found that the mixtures comprising anionic and cationic starches were very easy to handle. Contrary to the normal process for paper preparation wherein the cationic and anionic components are added and prepared separately, which requires two preparation and storage units, the mixtures ~~if~~ of cationic and anionic starches were cooked together and added at one point to the paper machines without any problems. Even more surprising was the finding that best performance as determined by characteristics of the paper sheets was obtained when at least one of the two starches was derived ~~form~~ from a waxy starch. It should be noted that although mixtures of two starches have been used, it is of course possible to use more different starches as long as the overall charge remains slightly cationic, i.e., there should be a slight anionic demand.

Amendments to the paragraph beginning at page 7, line 6:

Such a treatment consists of cooking the compositions batch-wise or through direct steam injection. With the use of the compositions of the present invention the process only requires one additional and preparation point, [. Which] which makes the process much cheaper.

Amendments to the paragraph beginning at page 9, line 6:

The advantages of the use of the compositions of the present invention can be ~~summarised~~ summarized as follows. Due to the balance charge situation of the composition product, more starch can be applied to the fibers without causing

overcharging effects. Additionally, the simultaneous cooking forms complexes with a different molecular weight than the single components. In ~~summa~~ sum, this provides a superior ~~behaviour~~ behavior that enables paper producers to replace their size press by an easy to use single component system.

Amendments to the paragraph beginning at page 15, 4<sup>th</sup> line from the bottom of the page:

Table 3 shows that the addition of 2.5% of the composition according to the present invention gives a machine and product performance that ~~which~~ is above that when size press starch and wet-end starch are used. The ash content is lower and the paper strength is increased. Moreover ~~moreover~~ the machine speed is increased or at least not negatively influenced.

IN THE CLAIMS:

Amendments to the existing claims:

1. (Amended) A composition of matter which consists of an anionic and a cationic starch wherein at least one of the starches is waxy starch, and said composition is at least slightly cationic.

2. (Amended) A composition of matter according to claim 1 consisting of an anionic and a cationic starch, said composition having an anionic demand (~~PCD~~) of lower than 200 $\mu$ eq/l.

New claims 10-12 have been added.